

CLAIMS

What is claimed is:

1. A method of selectively affecting angiogenic endothelial cells, comprising the
5 steps of:

administering to a mammal a composition comprising cationic lipids and a
substance that affects angiogenesis; and

allowing the composition to associate with angiogenic endothelial cells of an
angiogenic blood vessel for a time and in a manner such that the composition enters the
10 angiogenic endothelial cells.

2. The method of claim 1, wherein the composition is administered by injection
into the circulatory system and further wherein the composition has, in blood, five-fold or
greater affinity for angiogenic endothelial cells as compared to corresponding normal
15 endothelial cells.

3. The method of claim 2, wherein the injected composition has, in blood, ten-fold
or greater affinity for angiogenic endothelial cells as compared to corresponding normal
endothelial cells and further wherein the composition is comprised of 5 mole % or more
20 cationic lipids and the composition is injected intraarterially.

4. The method of claim 1, wherein the substance which affects angiogenesis is an
inhibitor of angiogenesis.

5. The method of claim 1, wherein the substance which affects angiogenesis is a
25 promoter of angiogenesis.

6. The method of claim 1, wherein the composition comprising cationic lipids and a substance that affects angiogenesis is associated with a liposome.

7. The method of claim 1, wherein the composition comprising cationic lipids and a substance that affects angiogenesis is a nucleotide sequence/cationic lipid complex, wherein the nucleotide sequence affects angiogenesis.

8. The method of claim 7, wherein the nucleotide sequence is an antisense RNA sequence which disrupts the expression of DNA being expressed within an angiogenic endothelial cell.

9. The method of claim 7, wherein the nucleotide sequence encodes a protein and is operatively attached to a promoter sequence.

10. The method of claim 9, wherein the promoter is activated, selectively, within an angiogenic endothelial cell and not activated in a corresponding quiescent endothelial cell.

11. The method of claim 10, wherein the protein promotes a thrombogenic cascade.

12. A method of reducing the blood supply to a site of angiogenesis, comprising the steps of:

administering to a patient with a site of angiogenesis DNA/cationic lipid complexes comprising DNA which encodes a protein which inhibits angiogenesis wherein the complexes are administered by injection into the circulatory system in an amount sufficient to kill angiogenic endothelial cells in blood vessels of the site of angiogenesis; and

allowing the complexes to associate with and enter angiogenic endothelial cells of angiogenic blood vessels leading to the site of angiogenesis where the protein which inhibits angiogenesis terminates a sufficient number of the endothelial cells so as to substantially reduce the blood supply to the site of angiogenesis.

13. A cationic liposome, comprising:
cationic lipids; and
an inhibitor of angiogenesis.

14. The cationic liposome of claim 13, further comprising a detectable label.

15. A nucleotide/cationic lipid complex, comprising;
cationic lipids; and
a nucleotide sequence which sequence affects angiogenesis.

16. The complex of claim 15, wherein the nucleotide sequence is a DNA sequence operatively linked to a promoter which promoter is selectively activated within an angiogenic endothelial cell.

17. The complex of claim 16, wherein the promoter is a promoter selected from the group consisting of a FIT-1 gene promoter, a FLK-1 gene promoter and a von Willibrand Factor gene promoter.

18. The complex of claim 15, wherein the nucleotide sequence is an antisense sequence which selectively disrupts the expression of genetic material within angiogenic endothelial cells.

5 19. A method of diagnosing a site of angiogenesis, comprising:
administering cationic liposomes comprising cationic lipids and a detectable label;
allowing the liposomes to selectively associate with angiogenic endothelial cells;
and
10 detecting the label and thereby determining a site of angiogenesis based on an accumulation of the label at the site.

15 20. The method of claim 19, wherein the detectable label is selected from the group consisting of fluorescent labels, histochemical labels, immunohistochemical labels and radioactive labels, the method further comprising:
isolating tissue at the site of label accumulation; and
analyzing the isolated tissue.